

ABSTRACT OF THE DISCLOSURE

A vehicle-mounted magnetoresistive sensor element includes plural plies of a magnetic layer and plural plies of a nonmagnetic layer, the magnetic layer and the nonmagnetic layer are alternately laminated with each other, the magnetic layer mainly contains Ni, Fe and Co, and the nonmagnetic layer mainly contains Cu, in which the magnetic layer has a composition represented by the following formula:  $\text{Ni}_{(1-x-y)}\text{Fe}_y\text{Co}_x$ , where x and y satisfy the following conditions:  $x \geq 0.7$ ,  $y \leq 0.3$  and  $(1-x-y) \leq 0.15$ , the nonmagnetic layer has a composition represented by the following formula:  $\text{Cu}_z\text{A}_{(1-z)}$ , where A is an additional element other than Cu, and  $z \geq 0.9$ ; the thickness  $t_m$  (angstrom) of the magnetic layer and the thickness  $t_n$  (angstrom) of the nonmagnetic layer satisfy the following conditions:  $10 < t_m < 25$ ; and  $18 < t_n < 25$ ; and, when a guaranteed storage temperature of the magnetoresistive sensor element is  $T^\circ\text{C}$ , the magnetoresistive sensor element has been previously subjected to heat treatment at a temperature equal to or higher than  $T^\circ\text{C}$ .

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